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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/712,227

11/15/2000

Noriko Kawai

1035-291

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01/23/2006

NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER

NORRIS, JEREMY C

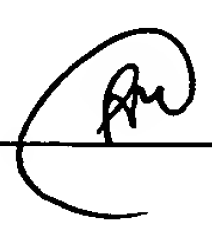
ART UNIT

PAPER NUMBER

2841

DATE MAILED: 01/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/712,227	Applicant(s) KAWAI ET AL.	
	Examiner Jeremy C. Norris	Art Unit 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-7, 18-27, 29-33 and 36-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6, 21, 27 and 31 is/are allowed.
- 6) ☒ Claim(s) 4, 5, 18-20, 22-26, 29, 30, 32, 33 and 36-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11-15-00 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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Claims 4, 5, 7, 18-20, 22-26, 29, 30 rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,408,052 (Inaba) in view of US (5,818,697 (Armezzani).

Inaba discloses, referring primarily to figure 1, a bent flexible wiring board comprising: a flexible insulating substrate that is bent (1); first bent wiring (4) provided on one surface of the insulating substrate; first bent insulative protecting film (7), provided on one surface of the insulating substrate, for protecting the first wiring; second bent wiring (not shown but referred to; col. 2, lines 55-65) provided on the other surface of the insulating substrate; second bent insulative protecting film (7), provided on the other surface of the insulating substrate, for protecting the second wiring; and a terminal portion (3), provided on at least one of the first wiring and the second wiring at an end thereof to be connected to an external electrical component, wherein: said first insulative protecting film and said second insulative protecting film are both premolded polymer films (sol. 2, lines 50-55), respectively, and are placed to cover the first wiring and the second wiring except for at least the terminal portion, and are bonded with the insulating substrate via an adhesive (6). Inaba does not specifically state that at least one of said first insulative protecting film and said second insulative protecting film, which is connected to the surface on which the terminal portion is provided is thinner than the insulating substrate [claims 4, 18, 19]. However, it is well known in the art to make protecting cover layers thinner than the base substrate as evidenced by Armezzani (col. 4, lines 25-30 and col. 5, lines 15-20). Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to form the protecting layers in the invention of Inaba to be thinner than the base substrate. The

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motivation for doing so would have been to reduce the thickness of the device without affecting the support of the wiring layers. Moreover the modified invention of Inaba teaches wherein the insulative protecting film which is thinner than the insulating substrate has a thickness which is a half or less than a thickness of the insulating substrate (Armezzani col. 4, lines 25-30 and col. 5, lines 15-20) [claims 5, 20], wherein said terminal portion is provided on said first wiring but not said second wiring [claims 24, 25], wherein said first and second wirings, which are on opposite sides of said flexible insulating substrate, are in electrical communication with each other via a through hole (5) [claims 26, 29, 30].

Similarly, regarding claims 22 & 23, the modified invention of Inaba teaches the claimed invention except for the limitation that said first and second wirings, which are on opposite sides of said flexible insulating substrate, are not in electrical communication with one another [claim 22, 23]. Nevertheless, it is old and well known to connect wirings on opposite sides of a circuit board as needed to formulate whatever circuit is needed. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to not connect the first and second wirings for the purpose of providing separate signal lines that are not shorted to each other, depending on the design on the circuit being carried on the board, formulating such connections based on circuit design being old and well known.

Moreover, although the modified invention of Inaba does not specifically state that a boundary portion between (a) one of the first insulative wiring board and the second insulative wiring board which is provided on the surface the terminal portion is

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provided and (b) the terminal portion is distanced by at least 0.2 mm from an end of a substrate of the external electrical component which is connected to the terminal portion [claim 7], it is well known in the art to provide a spacing between a component end and an end of a flexible cable/board. Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to provide a boundary portion of at least 0.2mm between the modified invention of Inaba and an external component. The motivation for doing so would have been to allow the board to easily flex.

Claims 32, 36, 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inaba in view of Armezzani, as applied to claim 4, 18, 19 above, further in view of US 3,573,345, (Devries) and US 3,596,228 (Reed).

The modified invention of Inaba teaches the claimed invention as described above except the modified invention of Inaba does not specifically teach that the thickness of one of the protecting films is 12.5 to 25 micrometer [claims 32, 36, 38]. Devries and Reed both disclose cover layers in the claimed thicknesses. Devries discloses cover layer (12), which is a protecting film to be about 1 mil, which is about 25 μm . Reed discloses Mylar protecting layers in the ranges of 0.5 to 20 mils, which is about 12 micrometers to 500 micrometers. As such, the claimed size range is old and well known. Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to make the first and second protecting layers of the modified invention of Inaba in the range of 12-25 micrometers for the purpose of providing the appropriate thickness to balance between the desired flexibility and overall weight and

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the desired level of protection afforded, such a size range being known in the art as evinced by Devries and Reed.

Claims 33, 37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inaba in view of Armezzani, Devries and Reed, as applied above to claims 32, 36 and 38, further in view of US 3,832,769 (Olyphant).

The twice-modified invention of Inaba teaches all of the claimed limitations except for the thickness of the insulating substrate being between 12.5 micrometers to 50 micrometers [claims 33, 37, 39]. Olyphant discloses base flexible substrate (12) with a thickness in the range of 0.1 to 10 mils, which is about 2.54 to 254 microns. It would have been obvious to one of ordinary skill in the art, at the time the invention was made to form the thickness of the substrate of the twice modified invention of Inaba to be 12.5-50 microns, such a range being known in the art as evinced by Olyphant, for purpose of providing sufficient support by the base without compromising flexibility and lightness of weight.

Allowable Subject Matter

Claims 6, 21, 27, and 31 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: Claims 6 and 21 state the limitation "an end of the second insulative protecting 5111-1 closer to the terminal portions the second insulative protecting film being: on a side of the substrate opposite the terminal portion is farther away from an end of the

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insulating substrate where the terminal portion is provided than an end of the first insulative protecting film closer to the terminal portion". This limitation, in conjunction with the other claimed features, was neither found to be disclosed in nor suggested by the prior art.

Response to Arguments

Applicant's arguments with respect to claims 4, 5, 7, 18-20, 22-26, 29, 30, 32, 33, and 36-39 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

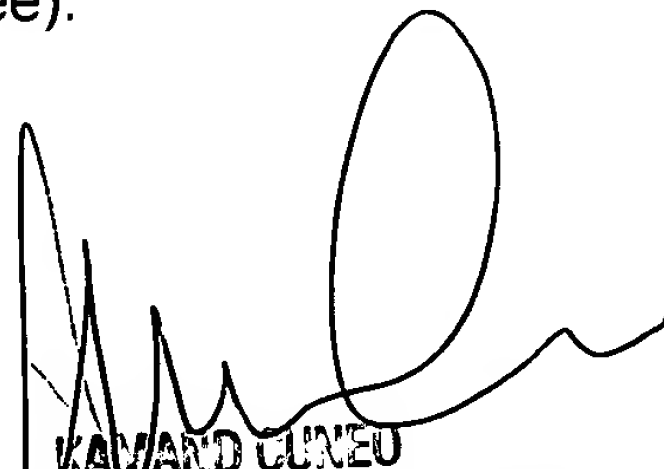
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 571-272-1932. The examiner can normally be reached on Monday - Friday, 9:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JCSN



KAMAND CUNEO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800